

patch), while ours were apparently made at the height of breeding. Very likely seasons vary somewhat not only from place to place but from year to year. Hence the frequent interactions between males at the display-logs at Prum & Johnson's study site may have been related to the establishment of dominance at what are probably traditional display-logs. If this was the case, it is of interest that the coordinated displays which develop between males in the pre-breeding period seem to parallel closely the coordinated displays between males in species of manakins in which such displays are a regular feature throughout the breeding season, e.g. members of the *Pipra aureola* species-group (Schwartz & Snow 1978, Robbins 1986).

Based on our observations alone, we would have had no hesitation in including *Masius* among the manakins in which males maintain individual spatially separated display territories in dispersed leks, such as the *Pipra serena* species-group, *Pipra pipra* and *Ilicura militaris*. Prum & Johnson, from their experience, conclude that the mating system of *Masius* is most like that of the *Pipra aureola* species-group. Clearly, further observations are needed.

#### Acknowledgements

We are very grateful to Cristián Samper K., Guillermo Cantillo F., and the staff of the La Planada research station for helping us in all sorts of ways and making our visit, to one of the richest areas of neotropical forest, so enjoyable; and we also thank the Fundación para la Educación Superior, Cali, for authorizing our visit.

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## The Tree Sparrow *Passer montanus* in Sardinia

by J. D. Summers-Smith

Received 13 March 1992

The first breeding record for the Tree Sparrow in Sardinia was of two pairs nesting in the tower of the fortress of Cagliari in 1898 (Bonomi 1899). Before that it had been known only as a winter visitor, for example an adult male at Decimomannu (17 km north-west of Cagliari) on 20.10.1896 (Giglioli 1907). There have been regular reports of breeding in Cagliari since the first record: breeding 1905 (Giglioli 1907), 1906 (Martorelli 1906), 1921–22 numerous breeder in Cagliari and its

surroundings (Moltoni 1923), 1955–57 (Moltoni 1964), 1961–62 (Kunkel 1963), 1979 (Summers-Smith 1979). It had spread to nearby Poetto and Capo S. Elia by 1956 (Moltoni 1964). By 1961–62 it was reported at Mesau southwest along the coast and inland to Siliqua (Walter 1965) and I saw them at Teulada and Porto Teulada in 1989.

In contrast, neither Steinbacher (1952, 1953, 1956) found any in Cagliari in 1952 and 1954, nor Corti (1958) in 1958; furthermore, Bezzel (1957) did not record any in 1956 in the Campidano Valley running northwest from the city. Despite these negative results, the regular reports make it most likely that the species has been present in Cagliari since the end of the last century.

Moltoni (1923) stated specifically that in 1922 Tree Sparrows were present nowhere else on the island. Since then, however, four other centres of colonization have been established.

On the west coast it was first recorded from Arborea in the 1940s (Walter & Demartis (1972), followed by Riola Sardo in 1955 and 1956, Oristano in 1956 (Bezzel 1957) and inland at Macomer in 1960 (Westermann 1961). Although Westermann (1961) could report only 1 from S. Giusta on 8.4.60, it appears that by 1961–62 Tree Sparrows were already well established in the fertile reclaimed land near Arborea and the coastal plain surrounding Oristano (Walter 1965).

Tree Sparrows were first reported from Isola di S. Antioco in 1956, though presumably they had been there for some time as at this time they were present not only in S. Antioco and Calasetta, but also in Carloforte on Isola de S. Pietro (Moltoni 1964). In 1989 I found them numerous in the coastal plain from S. Giovanni Suergiu north to Carbonia and Iglesias, but not further to the north in S. Angelo and Arbus.

A third colonization has taken place in the low-lying country between Alghero and Porto Torres in the northwest. The first record was of a single bird from Fertilia in the 1940s (Walter & Demartis 1972). This was followed by a report for Porto Torres in 1961 (Kunkel 1963) and breeding records for Sassari, Alghero and probably Fertilia in 1964 (Moltoni 1964). In 1989 I found it commonly in the valley from Alghero to Porto Torres and as far west as Tramariglio, but not in the higher lying towns of Ittiri, Villanova Monteleone and Pozzomaggiore.

The final area of occupation is on the east coast, where it was first reported from Tortoli in 1957, followed by Lanusei in 1959 (Moltoni 1964). I found it in the former in 1979 and, in addition, also in Arbatax, Villagrande Strisaili, Villanova Strisaili, Girasole and north along the coast to Capo Comiso and Olbia, but not inland in Dorgali, though I found it there in 1989.

I have attempted to reconstruct the history of the colonization in Figure 1, which gives the situation in 1959, 1969, 1979 and 1989 respectively. In this reconstruction I have discounted the isolated records for Macomer in 1960 (Westermann 1961) and Isola Caprera off the northeast coast (Walter 1965) that have not been repeated. Because of the lack of systematic observations some of the spread may have taken place earlier than suggested in the maps. However, the presence of birds in Bosa Marina and Dorgali in 1989, in both of which I failed to find any in 1979, suggests that colonization of the island is still taking place. The former of these may be

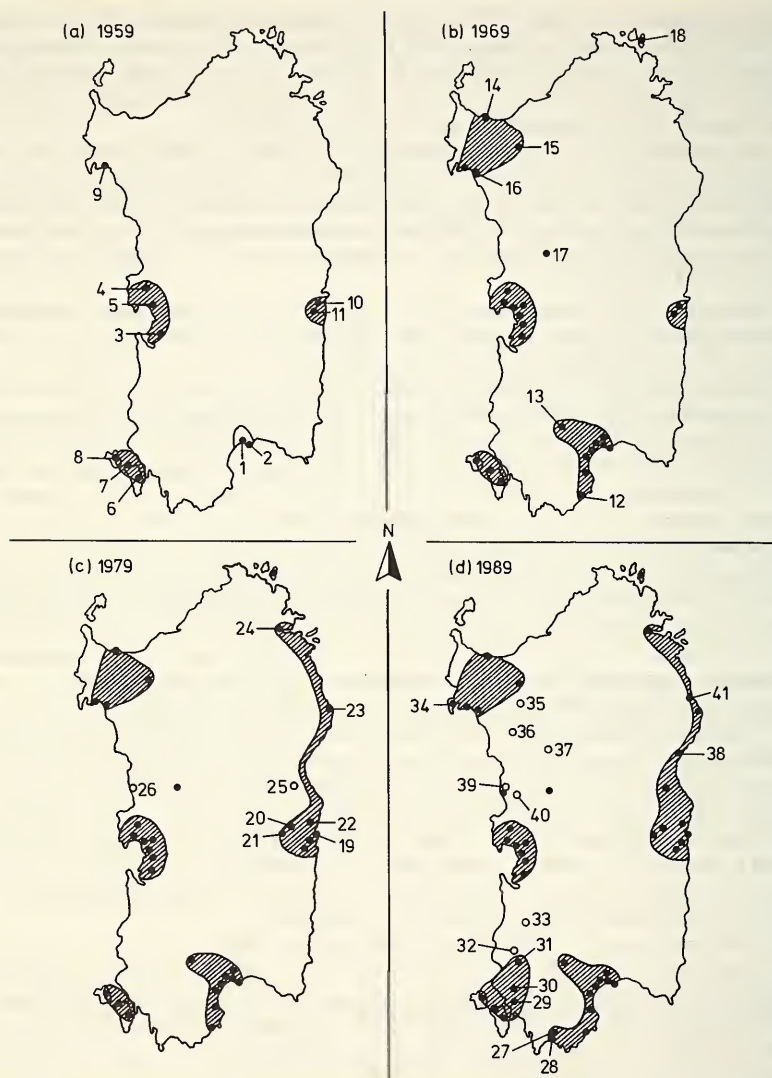


Figure 1. Distribution of Tree Sparrow in Sardinia: ●, occurrences; ○, looked for but not found.

Localities (sequence of numbering follows order of reference in text): 1, Cagliari. 2, Poetto. 3, Arborea. 4, Riola Sardo. 5, Oristano. 6, S. Antioco. 7, Calesetta. 8, Carloforte. 9, Fertilia. 10, Tortoli. 11, Lanusei. 12, Mesau. 13, Siliqua. 14, Porto Torres. 15, Sassari. 16, Alghero. 17, Macomer. 18, Isola Caprera. 19, Arbatax. 20, Villagrande Strisaili. 21, Villanova Strisaili. 22, Girasole. 23, Capo Comiso. 24, Olbia. 25, Dorgali. 26, Bosa Marina. 27, Teulada. 28, Porto Teulada. 29, S. Giovanni Suergiu. 30, Carbonia. 31, Iglesias. 32, S. Angelo. 33, Arbus. 34, Tramariglio. 35, Ittiri. 36, Villanova Monte Leone. 37, Pozzomaggiore. 38, Orosei. 39, Bosa. 40, Suni. 41, S. Giovanni.



the start of a new centre of colonization as in 1989 I could find them only in Bosa Marina, not in nearby Bosa or Suni.

As Walter (1965) has already pointed out, the Tree Sparrow favours the water-rich districts of the island, breeding below 200 m, though wandering in the winter and occurring up to 700 m.

Although Moltoni (1923) suggested that the Tree Sparrow was originally introduced to Sardinia, it seems to me equally probable that they could have arrived in Cagliari as involuntary passengers on board ship, possibly from Naples where it is a common bird in the town centre. There could have in fact been several such invasions and the spread from Cagliari could have been delayed until sufficient genetic variation had occurred in the founding population to give it the necessary vigour to initiate the expansion. This parallels the colonizations of Tree Sparrows from introductions to St. Louis, Missouri, U.S.A., in 1870, and Melbourne, Australia, in the 1860s and 1970s, in both of which they were in competition with the introduced House Sparrow *Passer domesticus*, and equally with the House Sparrow in South Africa, where long periods elapsed before there was any significant spread from the locus of introduction (Summers-Smith 1988).

A spread of this sort seems most probable for the colonization of the Arborea-Oristano area, that is connected to Cagliari by the low-lying Campidano valley; but the other areas are separated by high ground and it seems equally possible that these colonizations resulted from migrants from the north, as seems to be the case for Corsica and Malta (Summers-Smith 1988). In this connection, it is perhaps significant that the islands of S. Antioco and S. Pietro were occupied before the adjoining mainland coast.

The presence of Tree Sparrows in Bosa Marina, separated from the other populations by the high-lying hinterland, is consistent with a coastal arrival, particularly as in 1989 they appeared to be confined to the coast. This recalls the situation in S. Antioco, where they were first reported in 1956, but not on the mainland until 1989, with the closest approach from the east being Siliqua in 1961–62 (Walter 1965).

### Acknowledgement

The author wishes to thank Mr John Turner for his skill in preparing the distribution maps.

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## IN BRIEF

### THE NEST AND EGGS OF *ESTRILDA CAERULESCENS*

According to Serle & Morel (1977), the nest and eggs of free-living Lavender Firefinch *Estrilda caerulescens* are undescribed; they have, however, been bred in captivity (Goodwin 1982). In the course of regular ornithological field work at the ORSTOM Station site at M'Bour, Sénégal (14°23' N, 16°57' W), this species, which is very common, was found breeding at the end of August, in the middle of the rainy season. A nest with fresh eggs was found on 10 August 1986.

The nest was in an area of small clearings in which herbaceous vegetation predominated, edged with native shrubs (Mimoseae, Capparidaceae). The woody vegetation, which had been seriously affected by the droughts of 1972–73, included numerous dead and fallen trees, favouring the growth of lianas (*Antigonum leptopus*, *Momordica balsamina*, *Ipomaea* sp.). The site was also crossed by narrow tracks, favourable to the development of tall bordering weeds on whose seeds the Lavender Firefinch feeds.

The nest, 3 m above ground on a partially dead tree (*Cassia siamea*), was placed between three forked twigs of a terminal whorl. It was abundantly covered with, and well hidden by, the liana *Momordica balsamina*. The nest was domed and had at the top a very long (15 cm) and narrow (1.5 cm diameter) entrance tunnel. The nest chamber was some 12 cm deep and 8 cm wide. The total volume of the nest was estimated at 3 dm<sup>3</sup>, which is astonishing for the size of the bird (wing-length 52 mm, weight 8 g). The outer part of the nest was rather roughly made, but the interior was well padded. It was mainly composed of a graminaceous plant (*Bracharia distichophylla*), and still green at the time of its discovery, with some *Momordica* leaves around the nest chamber. No feathers or any other material was found inside the nest.

The eggs, 3 in number, were ovoid, uniformly cream-coloured with a slight pink tinge. When found they were translucent, indicating that they were newly laid. They measured 14.7 × 10.9, 15.0 × 10.1 and 15.9 × 11.4 mm and each weighed c. 0.9 g. If the clutch was complete, it was similar to that of related species in Africa, but on the low side for a savanna species (*Lagonosticta senegalensis* average 3.5; most savanna estrildines average 4.3, forest estrildines 3.7; Morel 1969).